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**UTILITY  
PATENT APPLICATION  
TRANSMITTAL**

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No. **A-21599**First Inventor or Application Identifier **Paul J. Frederick**Title **Method for Distributing Sports Entertainment**Express Mail Label No. **APPLICATION ELEMENTS**

See MPEP chapter 600 concerning utility patent application contents.

1.  \* Fee Transmittal Form (e.g., PTO/SB/17)  
(Submit an original and a duplicate for fee processing)
2.  Specification [Total Pages **18**]  
(preferred arrangement set forth below)
  - Descriptive title of the Invention
  - Cross References to Related Applications
  - Statement Regarding Fed sponsored R & D
  - Reference to Microfiche Appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure
3.  Drawing(s) (35 U.S.C. 113) [Total Sheets **2**]
4. Oath or Declaration [Total Pages **1**]
  - a.  Newly executed (original or copy)
  - b.  Copy from a prior application (37 C.F.R. § 1.63(d))  
(for continuation/divisional with Box 16 completed)
    - i.  **DELETION OF INVENTOR(S)**  
Signed statement attached deleting  
inventor(s) named in the prior application,  
see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

**\* NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).**

**ADDRESS TO:** Assistant Commissioner for Patents  
Box Patent Application  
Washington, DC 20231

5.  Microfiche Computer Program (Appendix)
6. Nucleotide and/or Amino Acid Sequence Submission  
(if applicable, all necessary)
  - a.  Computer Readable Copy
  - b.  Paper Copy (identical to computer copy)
  - c.  Statement verifying identity of above copies

**ACCOMPANYING APPLICATION PARTS**

7.  Assignment Papers (cover sheet & document(s))
8.  37 C.F.R. § 3.73(b) Statement  Power of  
(when there is an assignee)  Attorney
9.  English Translation Document (if applicable)
10.  Information Disclosure Statement (IDS)/PTO-1449  Copies of IDS  
Statement (IDS)/PTO-1449  Citations
11.  Preliminary Amendment
12.  Return Receipt Postcard (MPEP 503)  
(Should be specifically itemized)
13.  Small Entity Statement(s)  Statement filed in prior application,  
(PTO/SB/09-12)  Status still proper and desired
14.  Certified Copy of Priority Document(s)  
(if foreign priority is claimed)
15.  Other: .....

16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment:

 Continuation  Divisional  Continuation-in-part (CIP) of prior application No: **60/148,072 and 60/152,087**

Prior application information: Examiner \_\_\_\_\_

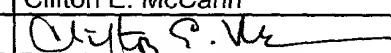
Group / Art Unit: \_\_\_\_\_

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

**17. CORRESPONDENCE ADDRESS**

Customer Number or Bar Code Label  (Insert Customer No. or Attach bar code label here) or  Correspondence address below

Name	LANE, AITKEN & McCANN			
Address	2600 Virginia Avenue, N.W.			
City	Washington	State	D.C.	Zip Code
Country	US	Telephone	(202) 337-5556	Fax (202) 337-8073

Name (Print/Type)	Clifton E. McCann	Registration No. (Attorney/Agent)	29,565
Signature			Date <b>Dec. 2, 1999</b>

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**STATEMENT CLAIMING SMALL ENTITY STATUS**  
**(37 CFR 1.9(f) and 1.27(c)) - SMALL BUSINESS CONCERN**

Applicant(s): Paul J. Frederick  
Serial Nos.: To Be Assigned  
Filed: Concurrently  
For: METHOD OF DISTRIBUTING SPORTS ENTERTAINMENT

I hereby state that I am

the owner of the small business concern identified below:  
 an official of the small business concern empowered to act on behalf of the concern identified below:

Name & Address of Concern:

UR There! Entertainment, Ltd.  
8667 Morning Star Court  
Springfield, Virginia 22153

I hereby state that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR 121 for purposes of paying reduced fees to the United States Patent and Trademark Office. Questions related to size standards for a small business concern may be directed to: Small Business Administration, Size Standards Staff, 409 Third Street, SW, Washington, DC 20416.

I hereby state that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

the specification filed herewith with title as listed above.  
 the application identified above.  
 the patent identified above.

If the rights held by the above-identified concern are not exclusive, each individual, concern or organization having rights in the invention must file separate statements as to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization having any rights in the invention is listed below:

no such person, concern, or organization exists.  
 each such person, concern, or organization is listed below.

Full Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
 Individual  Small Business Concern  Nonprofit Organization

Separate statements are required from each named person, concern or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of any issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

Name of Person Signing (Please Print):

*Marc D. Lipman*

Title of Person Other Than Owner:

*PRESIDENT*

Business Address of Person Signing:

*8667 Morning Star Ct,*

*Springfield, VA 22153*

Signature:

*[Signature]*

Date: *11/24/99*

## **METHOD OF DISTRIBUTING SPORTS ENTERTAINMENT**

### **CROSS REFERENCE TO RELATED APPLICATIONS**

This application claims the benefit of U.S. Provisional Application No. 60/148,072, filed August 10, 1999 and U.S. Provisional Application No. 60/152,087 filed September 2, 1999.

### **BACKGROUND OF THE INVENTION**

#### **I. FIELD OF THE INVENTION**

This invention pertains to a method and related system for distributing sports entertainment.

#### **II. DESCRIPTION OF RELATED ART**

Motorsports entertainment is one of the fastest growing fields of sports entertainment. Motorsports entertainment programs have long been produced and distributed to viewers remote from the site of the motorsports event through traditional means. Motorsports entertainment programs are typically produced through use of cameras stationed at various sites along the path taken by race cars or other motor vehicles. The producer selects camera feed to compile a program that is broadcast to all remote viewers.

In more recent years, producers have installed additional cameras that travel with the race cars or other participating vehicles. The cameras are mounted on various locations of the vehicles, and in some cases, are mounted on the helmets or other parts of the drivers' racing apparel. In various embodiments, the cameras are mounted on the exterior or within the interior of the vehicle, on the exterior or interior of a participant's helmet, or on the participant him or herself. The cameras are lightweight and durable so as to endure vibrations transmitted from the vehicles, and so as not to unduly interfere with the vehicles' performance. Stabilizing systems are provided so that the cameras record and/or broadcast stabilized views of the vehicle's environs.

The pictures taken by the vehicle-mounted cameras are transmitted to a receiving station by transmitting equipment carried by the vehicles and receiving equipment positioned at a receiving station. At the receiving station, the feed from the vehicle-mounted cameras becomes available to the producer, along with feed from the several other cameras that may be stationed along the track. The motorsports entertainment program is still compiled by the producer, who decides which of the various feeds is of interest at any particular point in time during the course of the motorsports event. Producers traditionally compile motorsports entertainment programs such that the feed from several different cameras are combined over the

course of the event, wherein only a small portion of the program consists of feed from any particular vehicle.

The motorsports entertainment program is typically transmitted to viewers through network, cable, or satellite television transmissions as it is being produced.

5 The remote viewer receives the program by selecting a designated channel, and the program received by the viewer is the same as the program as prepared by the producer. As such, the viewer is constrained by the feed selections that have been made by the producer, and has no ability to select the feed from a vehicle-mounted camera of particular interest to the viewer. The viewer's only choice is to watch or not watch the program as it has been produced.

The traditional prior art means of providing motorsports entertainment unduly constrains the viewer and prevents viewers from observing aspects of the motorsports entertainment event that are of particular interest. Many motorsports enthusiasts have a race car driver of primary interest, and would be primarily interested in viewing the motorsports event from the standpoint of the particular driver. For this large segment of the viewing public, the primary interest in viewing a particular event is not to view various positions of the track or view the track from the perspective of a variety of vehicles, but would be to view the track from the perspective of the driver of interest. Through this perspective, the viewer would be able to virtually ride with the driver

of interest, experiencing the track and track conditions as viewed by the driver, experiencing the positioning of the driver's vehicle in relation to competing vehicles, and experiencing the excitement of the race from the perspective of the driver of greatest interest. The viewer would also be able to experience the interest and excitement first hand of events impacting the driver, such as near collisions, pit stops, and the like.

Other sports entertainment programming shares attributes of motorsports entertainment and is traditionally distributed in ways similar to that discussed above. However, as in motorsports entertainment, the distribution of these other sports entertainment events fails to provide viewers with the ability to select camera feed of greatest interest and excitement to the viewer. Thus, prior art methods have likewise been deficient in connection with the distribution of sporting events in the nature of a wide variety of sporting events, including but not limited to skiing, sledding events, horse racing, harness racing, football games, and the like. The present invention has applications in the distribution of those kinds of sports entertainment programming as well.

It is accordingly an object of the present invention to provide improved methodology for the distribution of motorsports entertainment programming and similar sports programs, wherein viewers are able to select vehicle-mounted or other

participant-mounted camera feed of primary interest and excitement to the individual viewer.

It is a further object of the invention to provide a convenient and more efficient way of presenting advertising to viewers of sports programming.

5 It is a still further object of the present invention to provide a more efficient means for generating and assessing viewer purchases of sports entertainment programming.

## BRIEF SUMMARY OF THE INVENTION

The present invention involves a system that includes a plurality of video cameras positioned on vehicles or athletes that are participating in sporting events, transmitters for transmitting information from the plurality of cameras to a processing station, retransmission equipment for directing each camera feed from each of the plurality of cameras to a separate channel for distribution and remote viewing at the viewers' locations, and selectors that permit viewers to select from among the various channels, thereby allowing the viewers to select from the plurality of camera feeds.

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In practicing the distribution method of the invention, the plurality of cameras are simultaneously operated throughout the sporting event so as to generate a plurality of camera feeds throughout the event, each feed reflecting the perspective of an individual participant. The plurality of feeds is transmitted to the processing station and retransmitted as selectable channels, each channel being associated with a respective camera feed. The viewer selects from the plurality of channels to thus enable his or her viewing of the sports event through the perspective of the participant of greatest interest and excitement to the particular viewer.

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## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an elevational view of a race car participant in a motorsports entertainment event;

Fig. 2 is a plan view of a track used in a motorsports entertainment event;

5 Fig. 3 is a schematic view of equipment at a processing station in accordance with the invention; and

Fig. 4 is a schematic illustration of equipment used by a viewer in accordance with the invention.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

10 In accordance with a preferred embodiment of the present invention, Fig. 1 depicts a participant in a motorsports event. The participant is seated in a race car 10 in which camera 12 is attached to the vehicle roof 14. Camera 12 is lightweight and durable, so as to endure vibrations transmitted from the vehicle, and so as not to unduly interfere with the vehicle's performance. The camera is provided with a 15 stabilizing system so that the camera provides stabilized views from the vehicle. In a preferred embodiment, the camera is equipped with directional motors 16 that can be operated by the participant or can be operated remotely by others, so as to enable a desired repositioning of the camera throughout the motorsports event. The camera

is preferably equipped with a microphone and the camera is wired to a transmitter 13 to transmit video and audio information from the camera to a remote receiving station.

As illustrated in Fig. 2, vehicle 10 and other participating vehicles 18, 20 and 22 proceed around a track 24 during the course of the motorsports event. Each of the participating vehicles is equipped with a camera similar to camera 12 of Fig. 1, and each camera is wired to a transmitter similar to transmitter 13. As the vehicles proceed around track 24, data generated by the cameras is transmitted by transmitters 13 to receiving station 26. The cameras are operated throughout the motorsports event, providing substantially continuous feed to the receiving station from the environs of each of the participating vehicles.

Fig. 3 schematically illustrates equipment and operations at the receiving station in a preferred embodiment of the invention. Receiver 28 receives data transmitted from the vehicle-mounted cameras and delivers the information to retransmitter 30. Retransmitter 30 operates in conventional fashion to convert the data, as may be necessary, and direct information representing the plurality of camera feeds to respective channels 32 of a distribution system. In an alternative embodiment, a converter is provided at viewers' locations or between the receiving station and the viewers' location and allows a conversion of data from receiver 28 to data that generates images and sound at viewers' televisions, monitors or other

audiovisual equipment. The distribution system may be in the form of a pay-per-view television system or an Internet-type of computer distribution system, and may involve signal transmission by cable or telephone lines or by electrical waves.

Equipment at the site of a viewer is schematically illustrated in Fig. 4. 5 Information representing the plurality of camera feeds is received via respective channels 32 by receiver 34. Selector 36 is operable by the viewer to select from among the various channels that are available. As necessary, receiver 34 also converts the signal received from channels 32 to a signal that generates an image on screen 38. In this fashion, the image appearing on screen 38 is the image captured by the camera associated with the camera of the participant that is of greatest interest to the viewer.

10 In the preferred embodiment, the equipment at a viewer's station is in the nature of pay-per-view television or in the nature of computer equipment equipped with Internet or other computer network access. Channels 32 are in the nature of pay-per-view channels when the viewer's equipment is in the nature of pay-per-view television. Channels 32 are in the nature of one or more signal transmissions over the Internet when the viewer's equipment is in the nature of computer equipment. Selector 36 is a channel selector in the case of pay-per-view television and is preferably in the nature of a key-selected or mouse-selected option in the case of a 15

computer. In other embodiments, a viewer selects between channels by telephoning or otherwise informing the distributor, who then enables the viewer to receive information representing the view from the camera of choice.

In a further embodiment, the invention allows the viewer to select between camera feed from the perspective of a participant of particular interest, on the one hand, and camera feeds from the perspectives of other participants, or the combination of camera feeds that are selected and incorporated in a standard viewing program of the motorsports event, composed of images selected by the producer, on the other. In a still further embodiment, the viewer is provided a split-screen option, whereby the camera feed from the perspective of the participant of interest is viewed in one part of the screen, while the view from other cameras, optionally in the form of the producer's standard programming of the motorsports event, appears in another portion of the screen. In a still further embodiment, audio and video feeds are selectively receivable by the viewer such that a viewer can select a sound feed from one camera and a video feed from another.

Payment for and control of receipt of desired information is accomplished in a variety of fashions. When the desired information is transmitted through a pay-per-view television system, the pay-per-view signal is scrambled in one embodiment, and the viewer receives an unscrambled signal only upon making suitable arrangements

for paying the distributor's viewing charge. When the viewer's equipment is in the nature of computer equipment with Internet access, the viewer is prevented from viewing the screen having the camera feed of interest until the viewer makes suitable arrangements for paying the distributor's charge. The distributor optionally supplies the viewer with a password in order to access the pertinent screen.

The invention provides enhanced opportunities for generating advertising revenue. In either the case of pay-per-view television or transmissions delivered through the Internet, the provider adds banner advertising in a preferred embodiment. The advertising is changeable as the motorsports event progresses, and the provider may optionally intersperse information, such as information about the race or about the race participant, in order to keep the viewer's interest. In a still further embodiment, advertising revenue alone will generate sufficient revenue for the provider, such that images will be provided to viewers free of charge.

In a preferred embodiment, the provider will keep track of viewers' requests for camera feed of the motorsports event as a function of the participant of interest. In this way, the provider will be able to tabulate data and identify those participants of greatest interest to viewers. This data allows providers to more accurately associate viewer interest and advertising revenue with individual participants. This,

in turn, allows for a more effective way to satisfy viewer interest, compensate participants, and price advertising opportunities.

Numerous deviations from the preferred embodiment described above can be made within the spirit and scope of the invention. It may, for example, become expedient to provide camera feed for only the participants of highest interest. The particular participants for whom camera feed is made available may be determined by the number of viewer requests for such feed, and in an alternative embodiment, the available feeds may change during the event as the level of interest in particular participants ebbs and flows. In such systems, viewers are given the opportunity to switch mid-event between camera feeds of different participants.

The invention is suitable for sporting events other than motorsports events. These events include but are not limited to skiing, sledding events, harness racing, horse racing, football games, and the like. When a sports event consists of a plurality of short sporting events in which the participants are members of competing teams, such as in Olympic and world championship events, the viewer is in one embodiment given the opportunity to select camera feed from a plurality of cameras positioned on or adjacent to participants of a particular team. In a still further embodiment, camera feed of other classes of participants, such as the predicted winners of various events, is provided.

It will be seen that the above system and method enables a sports entertainment viewer the ability to select continuous camera feed of greatest interest and excitement to the viewer, and thus allows the viewer to virtually participate in the event with the participant of greatest interest, experiencing the same track or field conditions of the participant, experiencing the positioning of the participant in relation to other participants, and experiencing the excitement of the event from the perspective of the participant.

I claim:

1. A method for distributing video images of a sporting event comprising the steps of providing each of a plurality of participants in said sporting event with a video camera, providing each of said cameras with a respective transmitter for transmitting information regarding video images generated by the camera, providing retransmission equipment for receiving information transmitted by the transmitter and directing information regarding video images from each of the plurality of cameras to respective channels for remote viewing at viewers' locations, providing channel selectors that permit viewers to select from among the channels, simultaneously operating said cameras during the entertainment event so as to generate a plurality of camera feeds during the event, each feed reflecting a perspective of a respective participant, transmitting the plurality of feeds to the retransmitting equipment, and retransmitting the feeds to said channels, such that a viewer is allowed to select from a plurality of said channels to thus enable viewing of the sporting event through the perspective of one or more participants of greatest interest to the particular viewer.

2. The method of claim 1 in which the video cameras are provided with microphones and provide audio information that accompanies the video image information and is selectively receivable by viewers.

3. The method of claim 1 wherein the information regarding video images is transmitted by way of a pay-per-view television system, wherein the viewer selects video images of interest by selecting a particular pay-per-view channel.

4. The method of claim 1 wherein the information regarding the video images is transmitted by way of the Internet and the viewer selects video images of interest by operating keys or a mouse of a computer.

5. The method of claim 1 wherein viewers select camera feed from a camera associated with a participant of particular interest or a combination of camera feeds from cameras of a plurality of participants of particular interest, wherein a plurality of resulting images are viewed on a split television or monitor screen.

6. The method of claim 1 wherein a split television or monitor screen shows a combination of video images from a camera associated with a participant of particular interest to the viewer, on the one hand, and a standard viewing program of the sporting event on the other.

7. The method of claim 1 in which a provider of the images adds advertising to the video information such that the viewer views advertising information along with images of the sporting event.
8. The method of claim 7 wherein the provider intersperses information about the sporting event or the participant within the advertising information.
9. The method of claim 7 wherein the provider keeps track of viewers' requests for camera feed of the sporting event as a function of the participants of interest and uses the resulting information to help satisfy viewer interest, compensate participants, and price advertising opportunities.
10. The method of claim 1 in which camera feed is generated for all participants in the sporting event.
11. The method of claim 1 in which camera feed is generated for a select group of participants in the sporting event, wherein the select group is determined by the number of viewer requests for feed from cameras associated with the participants.
12. The method of claim 1 in which a viewer selects camera feed relating to a group of participants, wherein the group consists of participants of a particular team or participants that are predicted winners of the event.

13. The method of claim 1 wherein the sporting event is a race car competition.

14. A system for distributing sports entertainment comprising a plurality of video cameras mounted on participants in sporting events, a plurality of respective transmitters for transmitting information regarding video images from the plurality of cameras, retransmission equipment for receiving information from said transmitters and directing information regarding the video images to respective channels for remote viewing at viewers' locations, and channel selectors that permit viewers to select from among the channels, thereby allowing the viewers to select and view video images from at least one of said cameras.

## ABSTRACT OF THE DISCLOSURE

A method for distributing sports entertainment includes the step of providing a plurality of video cameras positioned on vehicles or athletes that are participating in sporting events, transmitters for transmitting information from the plurality of cameras to a processing station, retransmission equipment for directing the camera feed from each of the plurality of cameras to separate channels for distribution and remote viewing at viewers' locations, and channel selectors that permit viewers to select from among the various channels, thereby allowing the viewers to select from the plurality of camera feeds. The cameras are simultaneously operated during the sporting event so as to generate a plurality of camera feeds during the event, each feed reflecting the perspective of an individual participant. The plurality of feeds is received by the retransmission equipment and retransmitted to selectable channels, each channel being associated with a respective camera feed. A viewer is thus allowed to select from the plurality of channels to thus enable his or her viewing of the sports event through the perspective of the participant of greatest interest to the viewer.

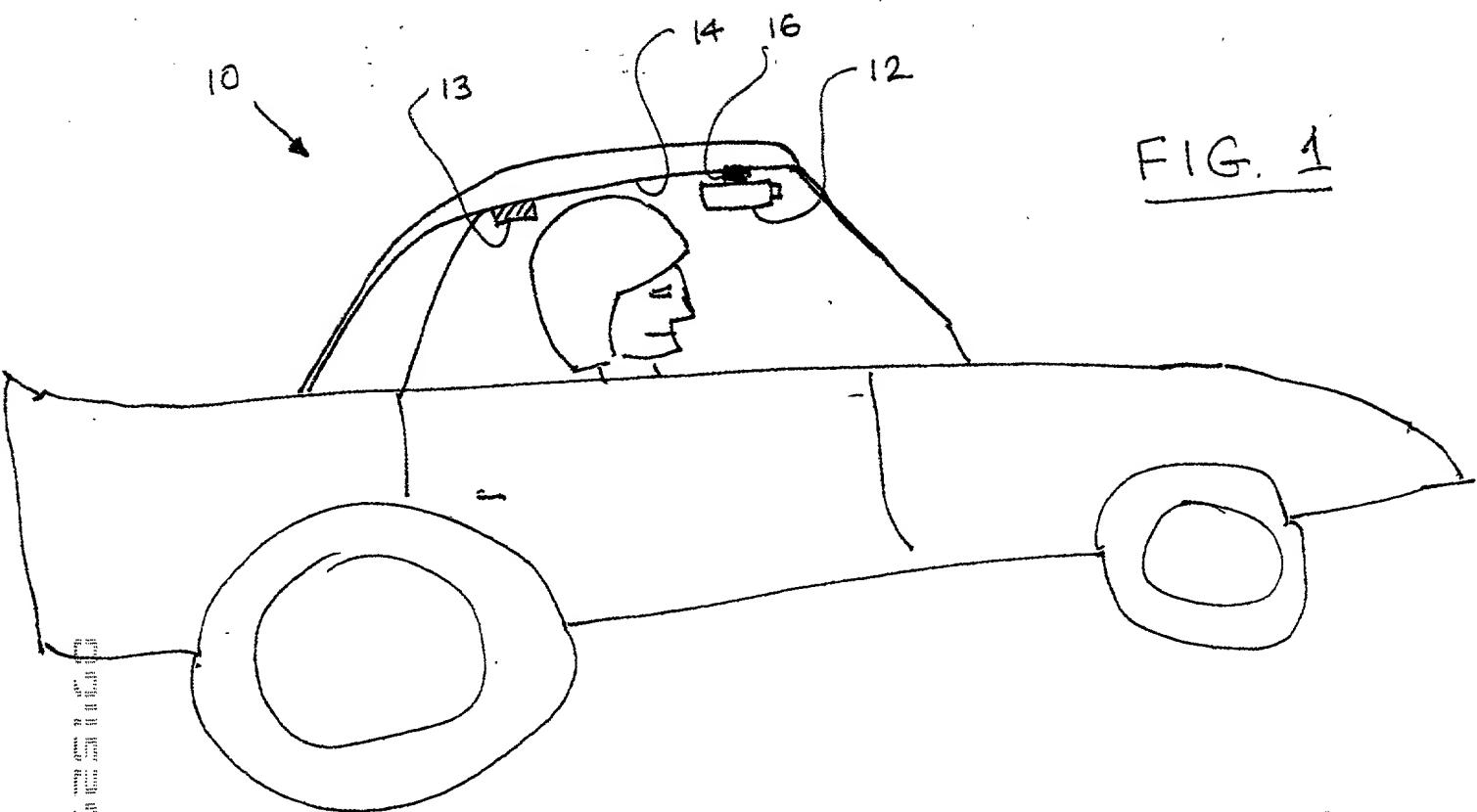


FIG. 1

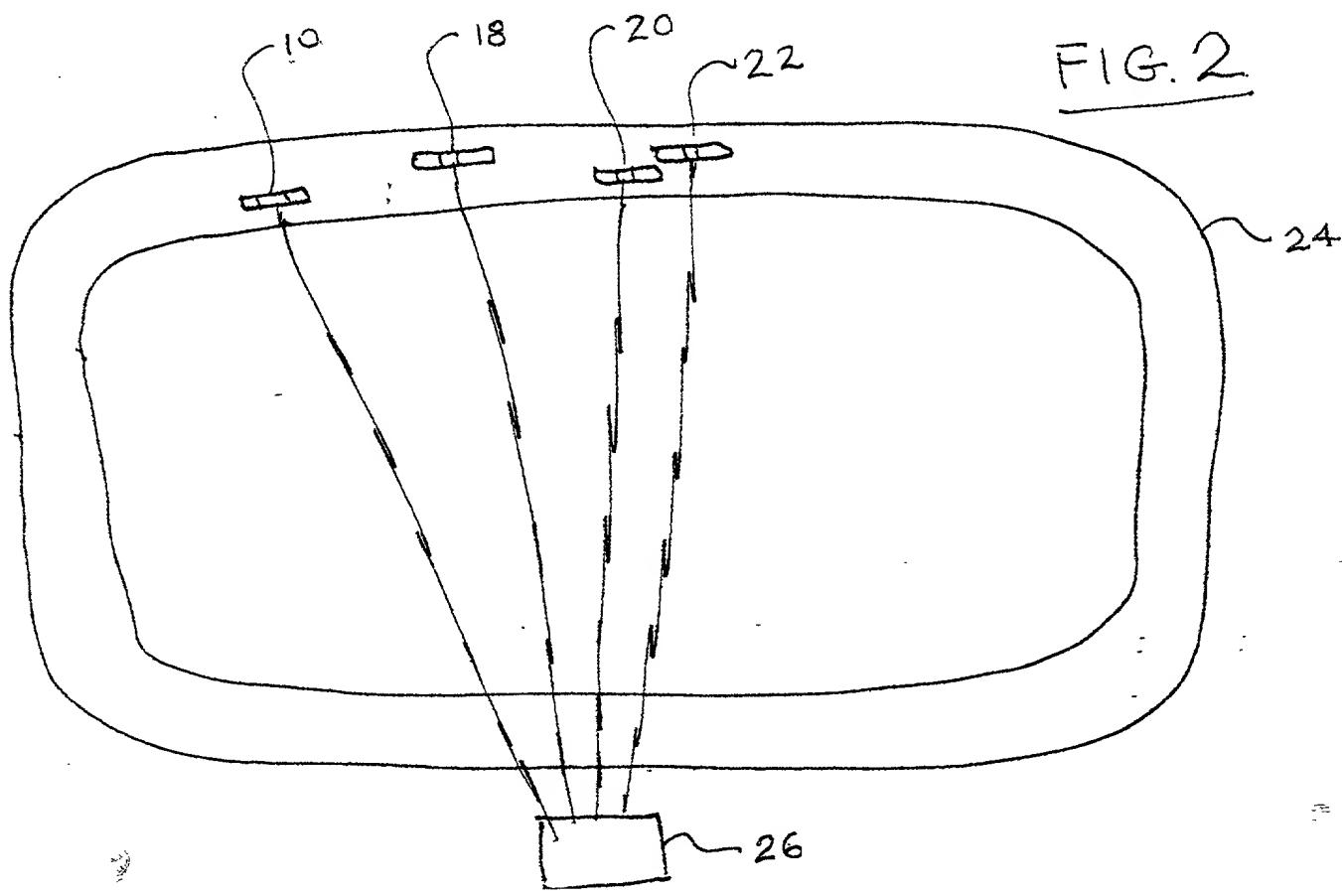


FIG. 2

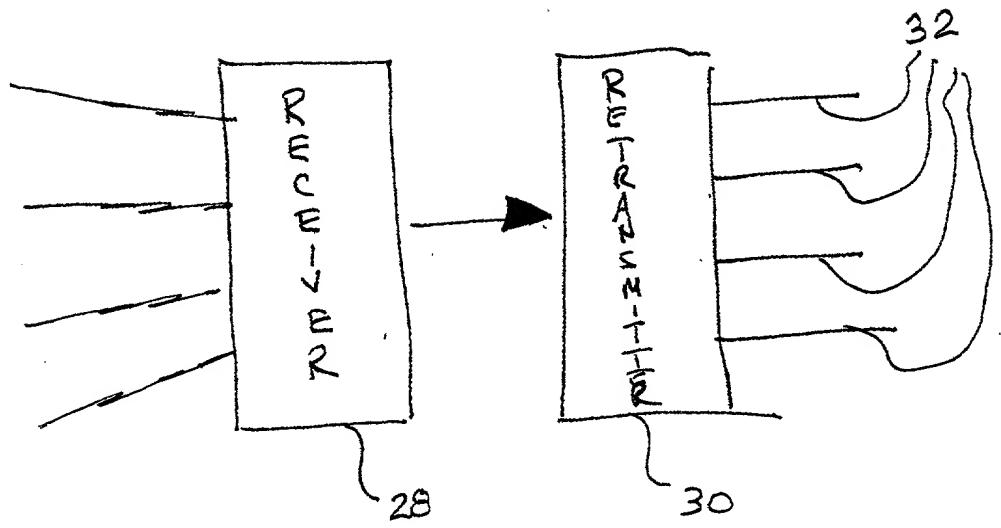


FIG. 3

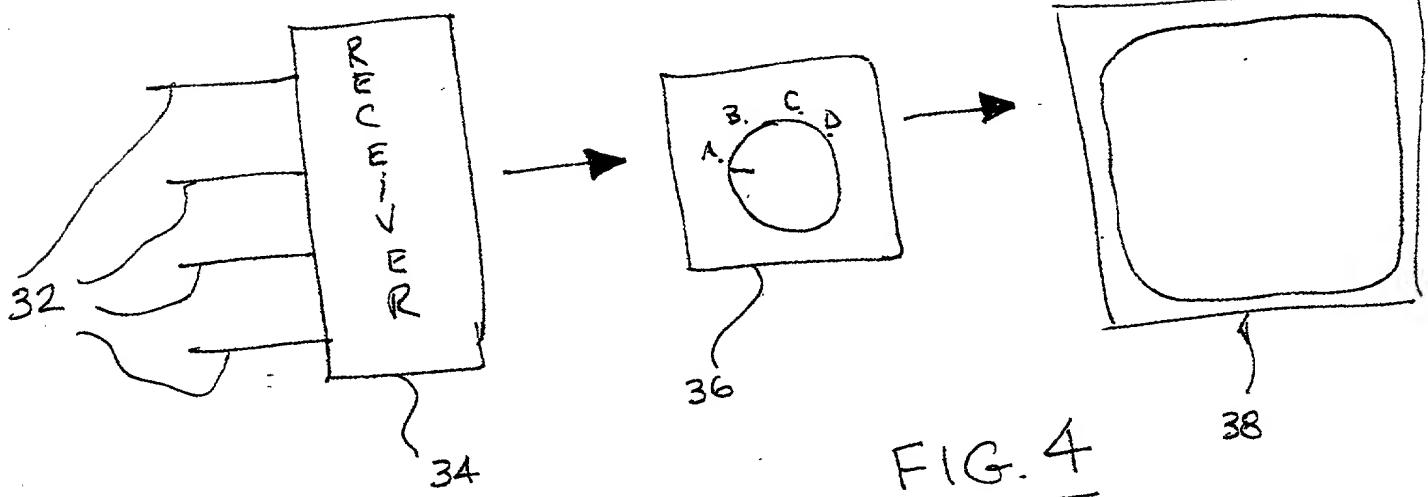


FIG. 4

DECLARATION AND POWER OF ATTORNEY  
U.S.A.

ALL PATENTS, INCLUDING DESIGN  
For Application Based on PCT:  
Paris Convention or Non Priority

Attorneys' Docket No.  
A-21599

As a below named inventor, I declare that my residence, post office address and citizenship are stated below next to my name, that the information given herein is true, that I believe that I am the original, first and sole inventor (if only one name is listed below), or an original, first and joint inventor (if plural inventors are named below, or on additional sheets attached hereto) of the subject matter which is claimed and for which patent is sought on the invention entitled: **METHOD OF DISTRIBUTING SPORTS ENTERTAINMENT**, which is described and claimed in the attached application.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s):	Priority Claimed		
(Number)	(Country)	(Day/Mo/Year)	None

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below.

60/148,072 (Provisional Appln. Ser. No.)	8/10/99 (Filing Date)
60/152,087 (Provisional Appln. Ser. No.)	9/2/99 (Filing Date)

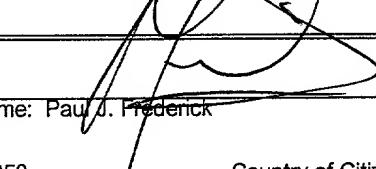
I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or any PCT international application(s) designating the United States listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application or PCT international application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Appln. Ser. No.)	(Filing Date)	(Status: patented, pending, abandoned)
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POWER OF ATTORNEY: As a named inventor, I hereby appoint as principal attorneys Richard L. Aitken, Reg. No. 18,791; Clifton E. McCann, Reg. No. 29,565; John P. Shannon, Reg. No. 29,276; Andrew C. Aitken, Registration No. 36,729; Laurence J. Marhoefer, Reg. No. 21,091; Ralph P. Albrecht, Reg. No. 43,466 and Cameron H. Tousi, Reg. No. 43,197, to prosecute and transact all business in the Patent and Trademark Office connected with this application and any related United States and international applications. Please direct all communications to:

LANE, AITKEN & McCANN  
Watergate Office Building  
2600 Virginia Avenue, N.W., Suite 901  
Washington, D.C. 20037  
Telephone: (202) 337-5556  
Facsimile: (202) 337-8073

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code; and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Full name and signature of sole or first inventor:  Name: Paul J. Frederick Date: 11.24.99

Residence: 708 Brent Road  
Post Office Address: Rockville, Maryland 20850 Country of Citizenship: USA

Full name and signature of second inventor: Name: Date:

Residence: Country of Citizenship:  
Post Office Address: